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EXAMINER

LUK, LAWRENCE W

ART UNIT PAPER NUMBER

2838

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/077,191

Applicant(s)

BOURILKOV ET AL.

Examiner

Lawrence Luk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7, 9-12, 14-17 and 19 is/are rejected.
- 7) ☒ Claim(s) 4, 6, 8, 13 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "primary cell 14" and "DC/DC converter 12" as described on page 3 line 3 of the specification necessitates the amendment of Figure 1 presently showing "The 'primary cell, 12" and "DC/DC converter and charger, 14" to --primary cell, 14 -- and -- DC/DC converter and charger, 12 -- according to specification. Correction is required.

### ***Claim Objections***

2. Claim 12 objected to because of the following informalities: Claim 12 cannot be dependent upon itself. Appropriate correction is required.
3. Claim 8 cannot be dependent on claim 9.  
Claim 14 cannot be dependent on claim 15.  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1-3, 7 9-11, 14-16 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated over Matsuura (6,094,034).

In regard to claims 1 and 15, Matsuura shows a switching type DC/DC boost type converter that receives energy from a primary battery cell and is arranged to deliver the energy to a rechargeable cell, set to provide a fixed output voltage that is less than the full charge voltage of the rechargeable cell (refer to Fig.1 & 2 and col.2, lines 13-65 and col.3, line 59 to col.4, line 5).

In regard to claim 2, Matsuura shows a circuit including a primary battery current control that senses primary battery current, and controls in part operation of the converter to provide constant current discharge (refer to col.4, lines 6-24).

In regard to claim 3, Matsuura shows a primary current sense amplifier/comparator and a power shutdown circuit to shut down the primary current sense amplifier/comparator (refer to col.6, lines 38-50).

In regard to claim 7, Matsuura shows the primary battery control comprises: operational amplifier with a primary battery current sensing resistor to provide primary battery current control, having the output of the amplifier coupled to the closed feedback loop of the converter (refer to col.7, line 41 to col.8, line 7).

In regard to claims 9, 14 and 19, Matsuura shows the circuit delivers an output voltage that corresponds to about 90% charge of the rechargeable cell (refer to col.7, lines 19-22).

In regard to claim 10, Matsuura shows a switching type DC/DC boost type converter that receives energy from a primary cell and is arranged to deliver the energy

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to a rechargeable cell; a circuit disposed to control the switching type DC/DC converter, the circuit comprising: a resistor voltage divider coupled to the feedback input of the converter, selected to provide a fixed output voltage that is less than the full charge voltage of the rechargeable cell (refer to col.4, lines 47-67).

In regard to claims 11 and 16, Matsuura shows a primary battery current sensor/comparator, included in the feedback control loop of the DC/DC converter, which controls in part operation of the converter to provide constant (refer to col.6, lines 12-37).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5, 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura (6,094,034) in combination with King (6,331,365).

In regard to claims 5, 12 and 17, Matsuura disclose the elements as above, except for a primary battery is an alkaline cell, Zn-air cell, fuel cell, solar cell, or another current limited power source.

King shows a primary battery is an alkaline cell, Zn-air cell, fuel cell, solar cell, or another current limited power source (refer to col.1, line 35).

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It would have been obvious to person having ordinary skill in the art at the time of the invention made to modify the device of Matsuura to include a primary battery is a Zn-air cell as taught by King for the purpose of improving the charging circuit.

### ***Allowable Subject Matter***

8. Claims 4, 6, 8, 13 and 18 are objected to as being dependent upon a rejected base claim. The prior art of record fails to teach or reasonably suggest that: Claim 4, a pair of external resistors coupled to the feedback input of the converter to adjust the fixed output voltage to be less than the full charge voltage of the rechargeable cell. Claims 6, 13 and 18, the rechargeable battery is a Li-Ion or Li-Polymer rechargeable cell. Claim 8, the closed feedback loop of the converter further comprises: a resistor coupled between output and feedback terminals of the converter. Claims 4, 6, 8, 13 and 18 would be allowable if rewritten in independent from including all of the limitations of the base claim.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Luk whose telephone number is (703)305-0617. The examiner can normally be reached on 7 a.m. to 5 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (703) 308-1680. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-7724 for regular communications and (703)305-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-1782.

LWL  
June 2, 2003

*Lawrence Luke*  
*examiner*  
*6/2/03*